Sullivant's Milkweed Restoration for the Michigan Department of Transportation: I-75 between Erie and Otter Creek, Monroe County, Michigan

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Cover: Sullivant's milkweed (*Asclepias sullivantii*) at Otter Creek, Monroe County, Michigan. Photo by Phyllis J. Higman.

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Introduction

This report provides a summary of activities associated with the transplanting of state threatened Sullivant's milkweed (*Asclepias sullivantii*) in partial mitigation of anticipated impacts from reconstruction of the I-75 corridor from Erie Rd. to Otter Creek (Project 125868; Figure 1). Approximately 5,932 Sullivant's milkweed plants were previously documented and mapped along the five-mile stretch of the right-of-way. The majority of these plants (5,787) were concentrated along one long stretch of the right-of-way. The soil from these areas will be stockpiled and re-spread after highway construction and are not the subject of this report. Approximately 145 plants were scattered elsewhere in the right-of-way and were targeted for transplanting to Sterling State Park. Locating and transplanting these plants is the subject of this report.

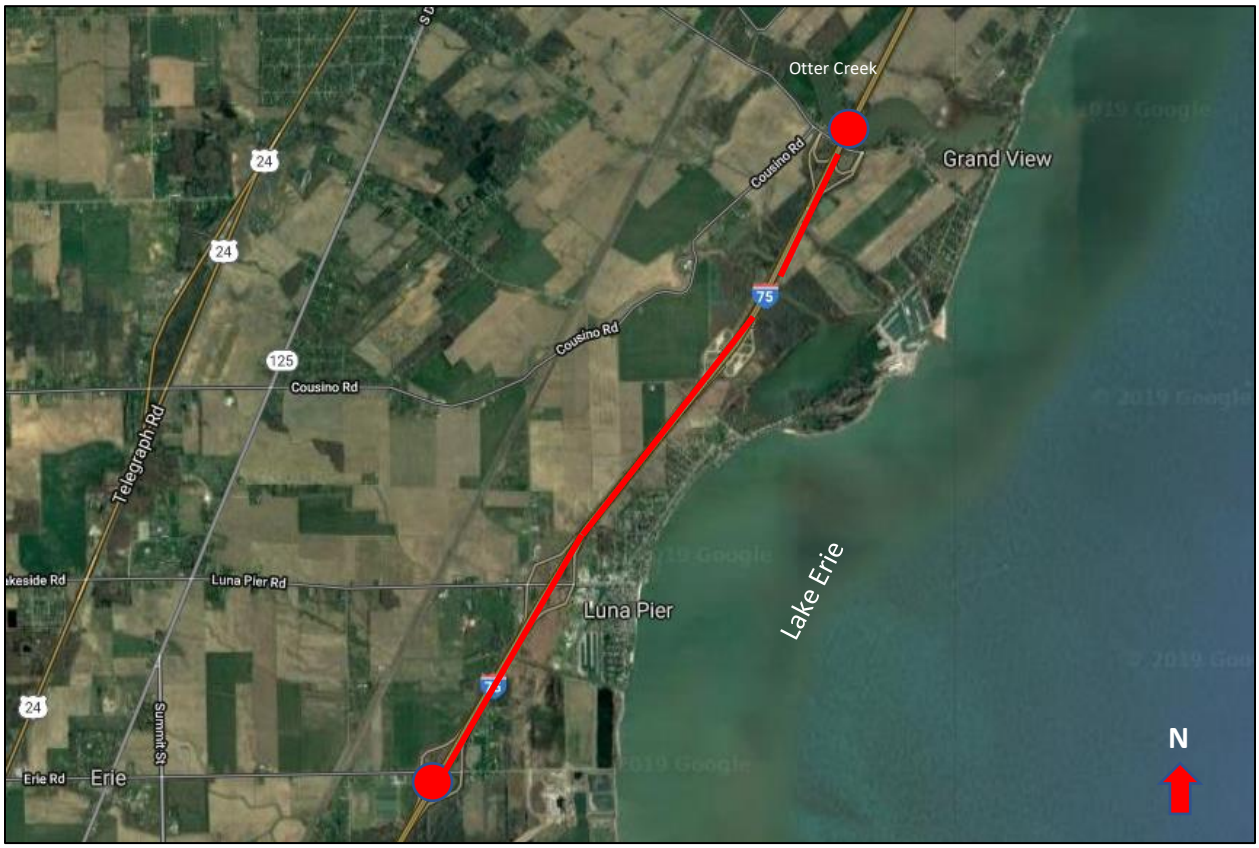

Figure 1. Project Site in Monroe County.

Methods

MNFI worked with the Michigan Department of Natural Resources (MDNR) to initiate and secure a threatened and endangered species permit that is required prior to disturbance of Sullivant's milkweed.

Aerial photos of the survey area with previously mapped occurrences of Sullivant's milkweed were reviewed and the shapefiles were uploaded to a Garmin 64 GPS unit. A preliminary field review of the project site was conducted in early July to become familiar with the project area, verify the approximate number and locations of plants at the site, and identify those plants scattered outside the stockpiling area that will be targeted for transplant. In addition, efforts were made to identify and mark any additional plants observed and any previously documented plants that were no longer there.

Michigan Natural Features Inventory (MNFI) worked with MDOT and MDNR to coordinate transplanting to the originally designated restoration site at Sterling State Park. During this process, two additional sites were identified by MDOT as potential transplant sites. A field visit was conducted with MDOT staff in mid-July to assess the suitability of the sites and determine the final restoration area.

A site visit was conducted in August to delineate and mark approximately 145 plants previously marked along I-75 for transplant using pin flags. Plant phenology was also assessed to determine suitability for transplanting, which is best conducted in late summer and early fall when plants are dormant, and the rootstocks well stocked with nutrients for winter survival.

Transplanting was conducted on September 12, 2019. Hand shovels were used to cut squarely downward into the soil horizon in a circle from 6" surrounding the base of the plant and pop the plant out with the goal of removing a 12 x 12 x 12-inch rhizomatic root ball with its surrounding soil. After digging, the plants were loaded into the bed of a truck and immediately transported to the transplant site and planted in pre-dug holes large enough to fit the entire root ball. The root balls were then tamped down firmly by foot, watered heavily and tamped down again to compact the soil around the roots.

Results and Discussion

During the initial field visit, it was challenging to confirm all the individuals in the stockpiling areas, however, the numbers were substantial. The scattered plants that were isolated from the main concentration of Sullivant's milkweed were easily located and 154 plants were marked for transplant.

It was decided that the best transplant area would be the northwest corner of the MDOT Morin parcel wetland restoration site, located at 8868 Bay Creek Rd. (Figure 2). Using this site will expand the range of transplanted milkweed beyond Sterling State Park and tis site was also judged to have the best conditions for transplanting. The site has been deeded over to the MDNR and has a conservation easement on it which will minimize the chances it will be mowed accidentally.

The permit was secured prior to the transplanting date of September 12 and a crew of four was assembled, including the MNFI survey lead and three MNFI Americorps volunteers. The entire crew worked together to dig up the first load of plants and transport them to the restoration site. Two of the crew stayed at the site to dig holes and plant, while two of the crew returned to the I-75 corridor to dig up additional plants and transport them to the restoration site. This cycle was repeated until 154 plants had been moved and planted. A fifth MNFI botanist helped for the last several hours of the effort. Individual plants were planted in groupings of five, distributed in the

upper and middle terraces of the restoration site and were marked with pin flags (Figure 3); each group was marked by a GPS point (Figure 4).

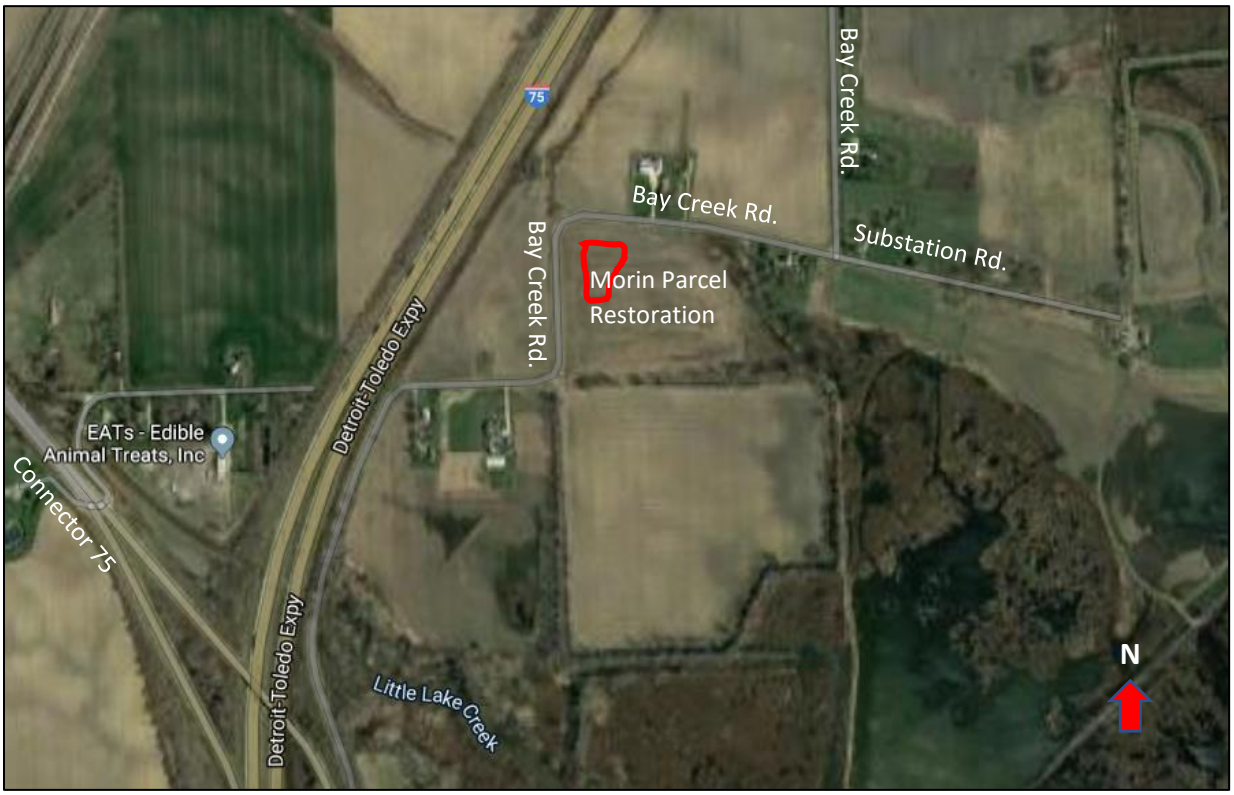

Figure 2. The Morin restoration site in Monroe County (planting area outlined in red).

Figure 3. Middle terrace at the restoration site showing marked plants in groups of five.

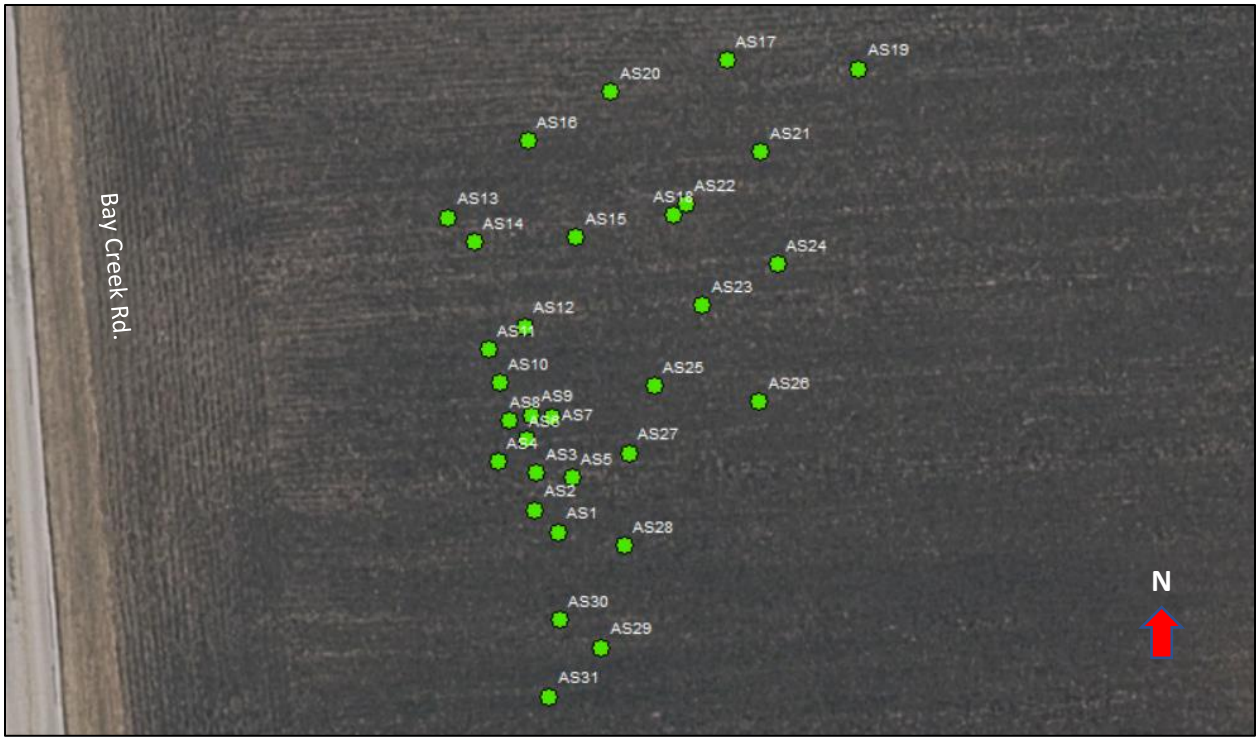

Figure 4. The Morin restoration site showing GPS points for Sullivant's milkweed transplants.

It was quite challenging to dig the plants up due to the heavy clay composition of the soil, however, the clay content also helped keep the root balls intact with the surrounding soil. Occasionally more the one milkweed was included in one root ball due to their close proximity. In spite of the difficult digging, with a crew of four, the entire operation was accomplished quickly over a period of ten hours. Individual plants were planted at the restoration site within 1 hour of exposure.

The restoration site was heterogeneous with varying water levels and amount of vegetation. The lower terrace was heavily vegetated and saturated, while the upper terrace had sparser vegetation and pools of standing water, mostly less than 1 inch (Figure 4).

A total of 154 plants were moved from the I-75 corridor to the Morin parcel wetland restoration site using the same methods that were used at the previous MDOT transplanting at Sterling State Park. Plants were mostly senesced with substantial, well-nourished roots, and high survival rates are anticipated. The soils at the Morin restoration site had a higher clay composition than those at Sterling State Park, which could potentially affect transplant success. However, these milkweeds were derived from similar soils along I-75. The plants are marked for future monitoring by MDOT to determine long-term success and potential differences in success rates between the middle and upper terrace locations. Shapefiles of the GPS points are delivered with this report.

Figure 5. Upper terrace of the transplant site showing sparser vegetation.

Figure 6. Sullivant's milkweed in a nearby remnant prairie pocket at Otter Creek.

Acknowledgements

We thank David Schuen and Jeremie Wilson at MDOT for project funding and coordination. Ashley Adkins, Brian Klatt, and Nancy Toben provided administrative assistance.